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Stress: The Major Risk Factor for Heart Attacks

"No man, I am satisfied, can ever be a sound Pathologist or a judicious practitioner, who devotes his attention to one of these systems in preference or to the exclusion of the other, through life they are perpetually acting and inseparably linked together.",
John Calthrop Williams, 1836 (1)

Dr. John Hunter (1728 – 1793), who has developed angina pectoris eight years prior to his death made the famous remark that "his life was in the hands of any rascal who chose to annoy and tease him". His prophecy was fulfilled when he became emotionally disturbed with a colleague in a meeting at St. George's Hospital. Hunter's brother-in-law, Everard Home, published an account of the illness (1794) together with the post mortem findings from John Hunter, which disclosed marked coronary atheroma and scars in the cardiac muscle tissue, indicative of myocardial infarction (heart attack).

The first description of acute myocardial infarction was made by Obratsov and Strazhesko in 1910. They noticed in their observation in 5 patients that the infarction was precipitated by direct events most related to physical or emotional stress. The infarction began in one case on climbing a high staircase, in another during an unpleasant conversation, and in a third during emotional distress associated with a heated card game.

The idea that stress can increase the risk of heart attack is so popular that it is seen by many people as a fact, reverberated by phrases incorporated in folk wisdom, such as "scared to death" and "a broken heart". Stress is generally regarded as the cause of heart attack by the survivors and their close relatives. Opinion surveys have shown that 9 in 10 adults believe that stress can contribute to the development of major illnesses, such as heart disease, stroke and cancer.

However, the cardiologic community still claims that smoking, hypertension, diabetes, obesity and dyslipidemia are risk factors much more important for the development of heart disease than stress. Although studies show that most of these risk factors are associated to autonomic dysfunction with sympathetic nervous system activation and elevation of stress hormones (adrenaline and noradrenaline).

As a result many cardiologists do not dedicate much of their time listening to complaints from their coronary patients, about the daily stress they face. Additionally, most cardiologists are usually inclined to focus their attention to technical solutions.

Notwithstanding an important issue is: "What is the precise mechanism that gives support to stress as a risk factor for coronary heart disease, in the prevalent pathophysiological concept represented by the coronary thrombosis theory? "

Albeit this question continues under debate, with some hypothesis being formulated, the fact is that the mechanism in which stress precipitates heart attack doesn't has a clear cause and effect relationship inside the coronary thrombosis theory concept.

An interesting point of view was expressed by Dr. Herman K. Hellerstein of Cleveland related to the feelings of President Eisenhower who told in television interview that his heart attack in 1955 occurred shortly after his ire was aroused by three annoying phone calls which interrupted a golf match. Dr. Hellerstein, speaking to the American Heart Association, said: "It is highly unlikely that acute coronary thrombosis is associated with unusual physical or emotional efforts. It takes hours and days for a thrombus (blood clot) to develop enough to block a heart artery.

On the other hand controversial issues continue to arise about the coronary thrombosis theory, like:

- 1) A study published last month in the New England Journal of Medicine confirms the findings that routine aspiration of thrombus before primary percutaneous coronary intervention in patients with ST-segment elevation (STEMI) has not been proved to reduce the rate of death and rehospitalization for myocardial infarction at 1 year after the procedure (2).
- 2) Other study published few days ago, this time in the Journal of the American Medical Association, highlights that non-obstructive coronary artery disease is associated with significantly increased risk of heart attacks, consistent with previous studies indicating the majority of myocardial infarctions are caused by non-significant stenoses (narrowing of a blood vessel) (3).

Meanwhile, an article published in the last edition of the Wise Traditions in Food, Farming, and the Healing Arts Journal, from Weston A. Price Foundation (4), brought to light an alternative line of thought represented by the myogenic theory of myocardial infarction developed by Dr. Quintiliano H. de Mesquita, a Brazilian cardiologist and professor, in 1972. His theory is based on stress as the underlying cause of ischemic heart disease.

Dr. Mesquita passed away in 2000. His son in law, Carlos Monteiro*, also a researcher, wrote the article published in the Wise Traditions Journal which, among other points, explains the pathophysiological mechanism in myogenic theory. Inside this theory the regional myocardial failure is the determinative factor for acute myocardial infarction (AMI).

According to Dr. Mesquita's theory the process starts with coronary atherosclerosis and slow coronary flow which develops myocardial ischemic process through the imbalance between demand and blood supply to the myocardial segments. Every time when is developed a relative coronary insufficiency through physical or psycho-emotional stress results in an immediate loss of contractility of the ischemic area and simultaneous exaltation of other unaffected contractile ventricular segments. The continuity of such repetitive ischemic manifestations tends to contribute to the installation of nonsynergic segments, by ischemia + loss of contractility and overload imposed to the remaining intact ventricular segments, during the ventricular ejection phase. Thus, the coronary disease contributes to the deterioration of the ventricular segment, constituting areas of myocardioclerosis or segmental myocardial disease, possible future site of the myocardial infarction.

In this sense the acute stress (or chronic stress overload) may be the final blow in the compromised myocardial segment, resulting in the AMI.

Monteiro has compared the myogenic theory with the coronary thrombosis theory in their different philosophies, therapeutics and outcomes, involving a large group of patients, in the three stages of ischemic heart disease. The first stage is represented by the stable heart disease, the second stage represented by unstable angina and the third stage by the acute myocardial infarction. It was clearly demonstrated a remarkable advantage in the reasoning and benefits for the myogenic theory over the coronary thrombosis theory in these comparisons.

Monteiro also discusses in his article the thesis that stress leads to increased lactate production, suggesting that lactate accumulation represents a step toward the myocardial necrosis.

In November 2012 Monteiro has presented two speeches at the Fourth International Conference of Advanced Cardiac Sciences – “The King of Organs Conference, 2012”, held in Saudi Arabia Kingdom (5,6,7). He was indicated to participate as speaker by Dr. Paul J. Rosch, President of the American Institute of Stress, Professor of Medicine and Psychiatry at New York Medical College and member from the scientific committee of this conference.

In the first presentation he talked about the pathophysiological and therapeutic concepts of the myogenic theory, on the following topics: Coronary thrombosis: cause or consequence of myocardial infarction?; Introduction and fundamentals; Mechanism and sequence of events; Stress and acute myocardial syndromes; The benefits of cardiotonic drugs in patients with stable heart disease, unstable angina and acute myocardial infarction; The role of the cardiotonic completing the effects of coronary collateral circulation; The cardiotonic sympatholytic properties; Endogenous cardiotonic steroids; etc..

In the second presentation he gave an overview about the new pathophysiological concepts and risk factors for coronary artery disease based on his acidity theory of atherosclerosis, developed in 2006. The acidity theory complements and expands the myogenic theory by reviewing the following topics: What causes elevated blood cholesterol levels?; The sympathetic activation in stress, ageing, high carbohydrate diets, air pollution, salt, smoke, hypertension, diabetes, etc...; Why sympathetic dominance is the triggering factor in atherosclerosis and coronary disease; Risk factors for atherosclerosis and autonomic imbalance; Why atherosclerosis is milder or non-existent in individuals with Down syndrome and is also less severe in chronic alcoholism; Why sympatholytic agents and stress reduction may slow the progression of atherosclerosis, etc... He has also discussed on the possible mechanisms of action that mediate these responses.

As one can see the concepts advocated by the myogenic theory since 1972, with the recent addition of the acidity theory of atherosclerosis, make clear that heart disease process involves two distinct pathologies. This led the authors to prefer the term “coronary-cardiomyopathy” or “coronary-myocardial disease” instead “coronary heart disease” and the term “acute myocardial syndromes” instead acute coronary syndromes”. Their reasoning is contrary to the currently accepted thinking which has its cause and effect relationship based in the thrombocentric coronary heart disease model.

Noteworthy is the citation from George E Burch (8), a shaper of modern cardiology, which goes strikingly to the point:

***“The coronary patient does not die from coronary disease,
he dies from myocardial disease.”***

References:

- 1) John Calthrop Williams, book “Observations on Nervous and Sympathetic Palpitations of the Heart” (1836), where he called attention to the fact that nervous disorders of the heart were too frequently confused with organic disease.
- 2) Bo Lagerqvist, Ole Fröbert et al. Outcomes 1 year after thrombus aspiration for myocardial infarction. N Engl J Med 2014; 371: 1111- 1120
- 3) Thomas M. Maddox, MD, MSc; Maggie A. Stanislawski et al. Nonobstructive coronary artery disease and risk of myocardial infarction, JAMA. 2014;312(17):1754-1763. doi:10.1001/jama.2014.14681
- 4) Carlos Monteiro, Stress as Cause of Heart Attacks - The Myogenic Theory. Journal *Wise Traditions in Food, Farming, and the Healing Arts*, Fall 2014 at <http://www.westonaprice.org/modern-diseases/cardiovascular-disease/stress-as-cause-of-heart-attacks/>
- 5) Powerpoint presentation in the Fourth International Conference of Advanced Cardiac Sciences, on the Myogenic Theory of myocardial infarction at <http://www.infarctcombat.org/MyogenicTheory.html> . Video presentation (short) [here](#)
- 6) Powerpoint presentation in the Fourth International Conference of Advanced Cardiac Sciences, on the Acidity Theory of Atherosclerosis at <http://www.infarctcombat.org/AcidityTheory.html> . Video presentation (short) [here](#)
- 7) The King of Organs Conference 2012 was reported by the American Institute of Stress at [AIS Health and Stress Newsletter, December, 2012](#)
- 8) Burch GE and col. Ischemic cardiomyopathy, Am Heart J. 1972 March, 83(3): 340-50

**Carlos Monteiro is honorary board member from Weston A. Price Foundation, Fellow from the American Institute of Stress, President of Infarct Combat Project and non-official member of The International Network of Cholesterol Skeptics - THINCS. In 2012 he has published the book “Acidity Theory of Atherosclerosis – New Evidences”, available at [Amazon.com](#) and other bookstores. In it he discusses about the pathophysiology and risk factors for coronary artery disease, based on his concepts.*